



# Free Route Airspace Maastricht (FRAM)

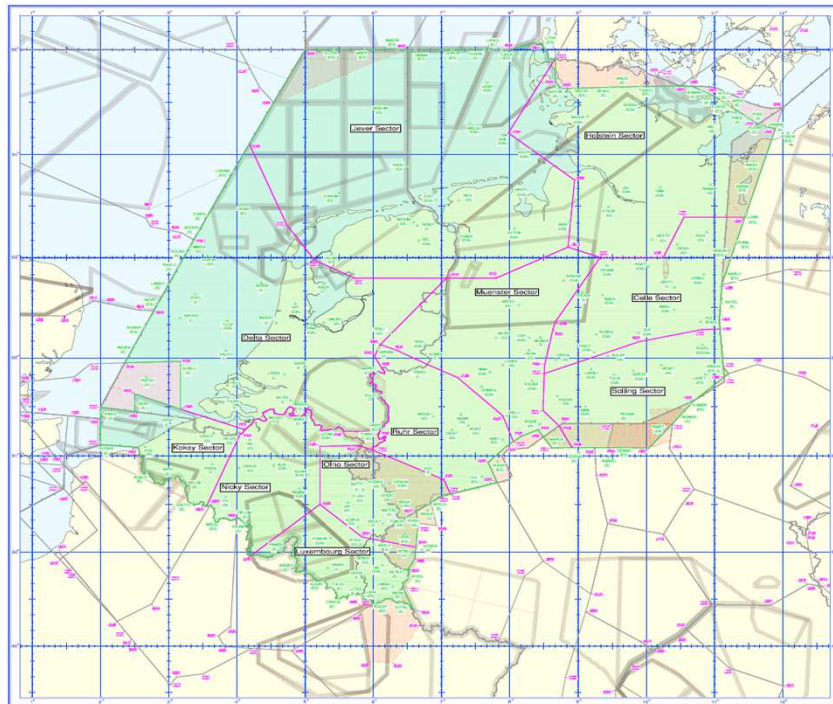
Maastricht Upper Area Control Centre

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Airspace and Network Planning

24<sup>th</sup> – 25<sup>th</sup> May 2018

## MUAC implements FRA on behalf of four countries



- MUAC FRA is laterally available in the:
  - Brussels UIR
  - Amsterdam FIR
  - Hannover UIR
  - Parts of the Rhein UIR (where the provision of ATS is delegated to Maastricht UAC)
- Vertical Limits are FL245 – FL660
- FRA trajectories can utilize up to 220 FRA points

# The MUAC Concept of Operations for Free Route Airspace

Free Route Airspace with  
**Intermediate**  
waypoints

Traffic remains subject to general  
rules, procedures and  
agreements with **adjacent /**  
**subjacent ATC units**

Trajectories shall not  
plan closer than **2.5nm**  
to the FRA border

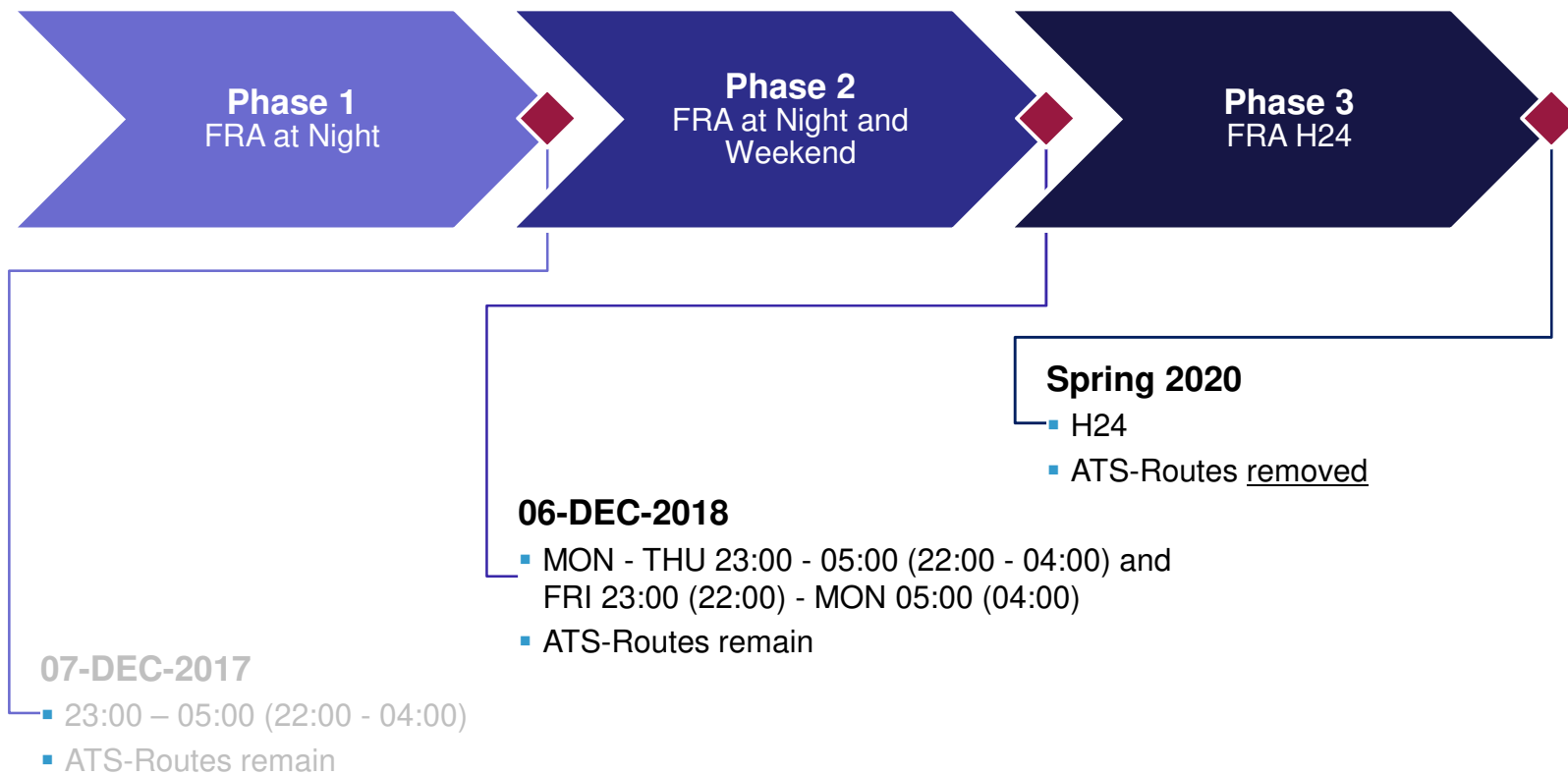


Lateral connectivity via  
**E / X points**

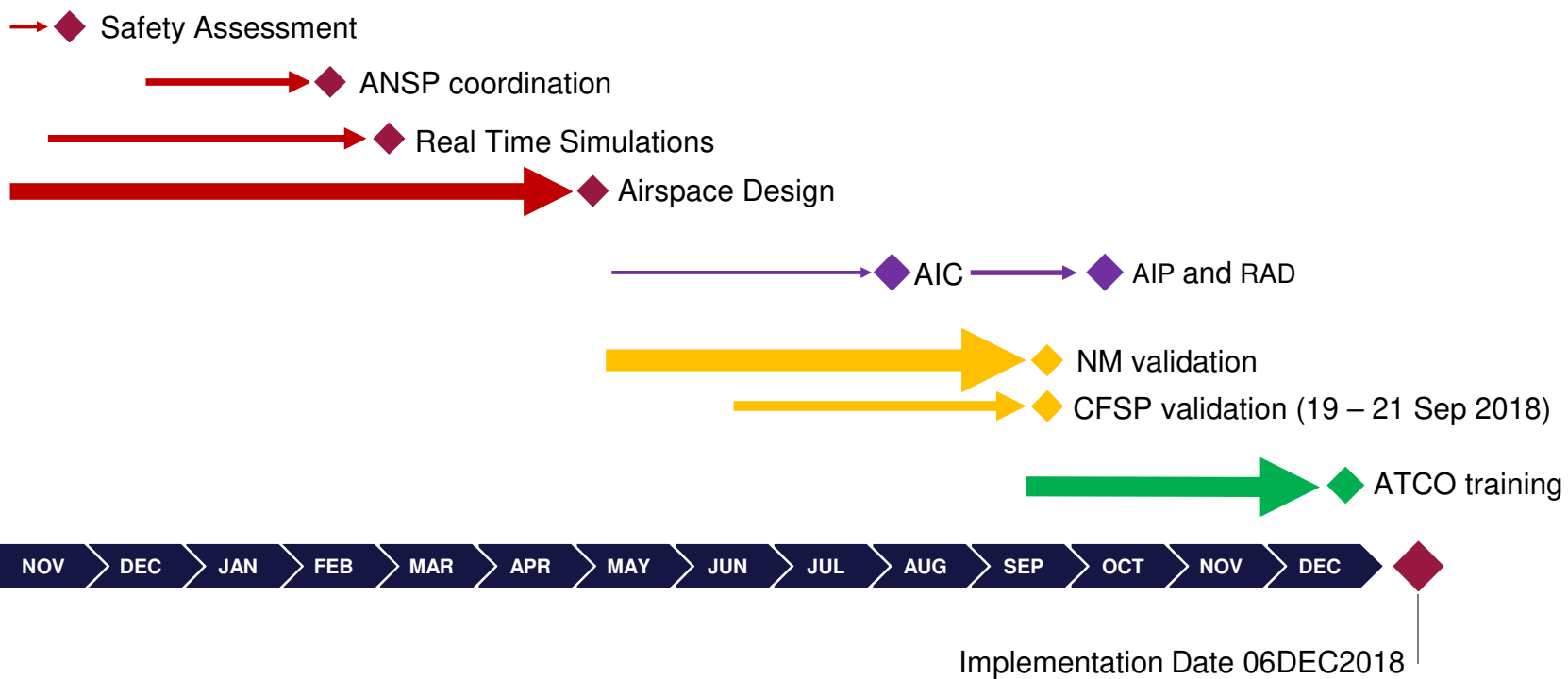
Vertical connectivity via  
**A / D points**

**Connecting Routes**  
for main departure / arrival flows

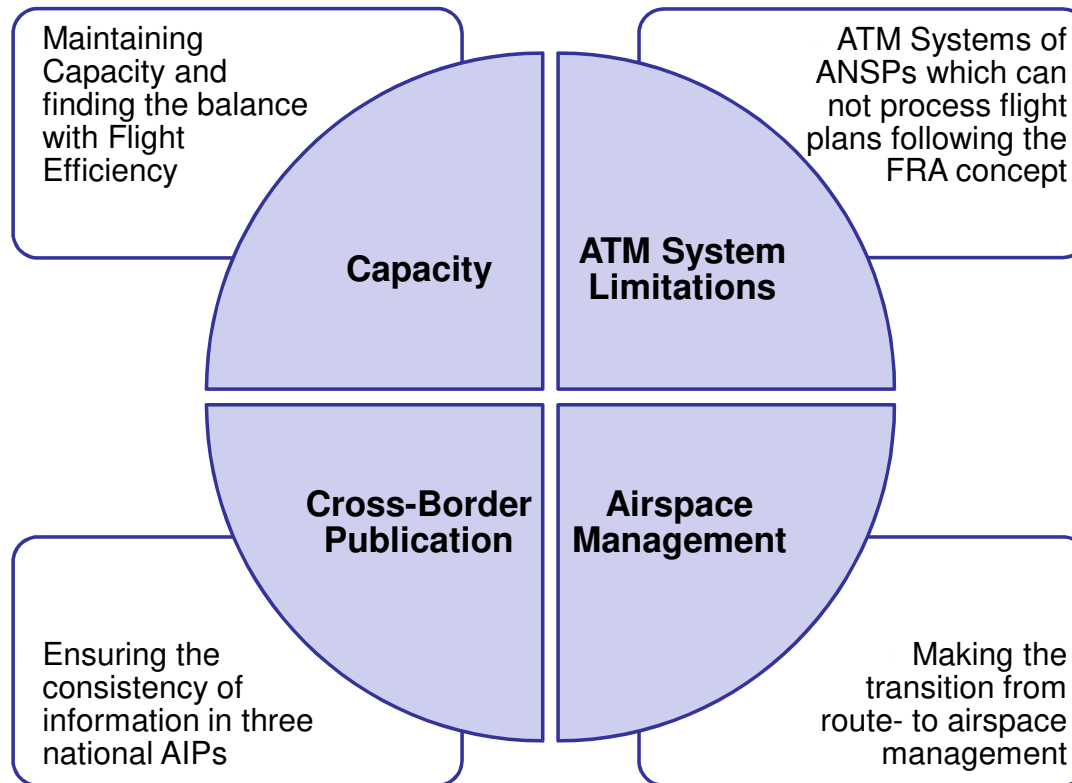
## Free Route Airspace at MUAC is implemented in three Phases



# The MUAC Development Cycle for each FRAM Phase



# Challenges for the implementation of Free Route Airspace at MUAC



## Acceptance of MUAC FRA by the AO community



About 60% of all flights crossing MUAC use DCT segments.

More than 500 DCT segments were already available before the implementation of FRA.



Each Night, about 20 – 40 flights use new opportunity's along DCT segments which were made available by FRA.

MUAC regularly analyses these new routings to verify the FRA concept.

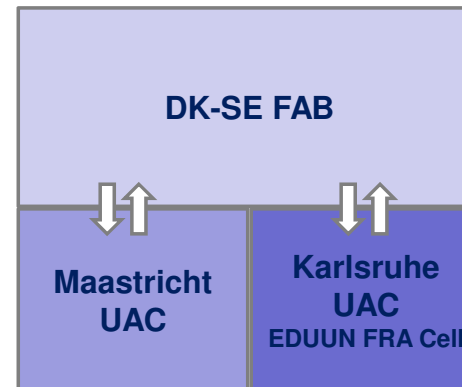


MUAC proactively approaches individual AOs with FRA flight planning suggestions.

AOs and CFSPs are very helpful to further improve MUAC FRA

## Concept for a first implementation of Cross-Border FRA

- MUAC, Naviair, LFV and DFS are working together on an initiative to offer cross-border FRA between\*:
  - Maastricht UAC and Copenhagen ACC
  - Karlsruhe UAC and Copenhagen ACC
  - Karlsruhe UAC and Malmö ACC
  
- Eligible are flights departing / arriving at aerodromes within the DK-SE FAB.
  - These FPLs **do not require a boundary waypoint** between the respective ACCs.
  
- Flights overflying DK-SE FAB are not eligible for cross-border FRA with MUAC or DFS.
  - These FPLs **have to file a boundary waypoint** between the respective ACCs (same as today).



\* Between Maastricht UAC and Karlsruhe UAC at a later stage



## Fields for development towards Cross-Border FRA

### Delegated Areas

Publication of FRA in delegated areas between Germany and Denmark / Sweden.

Currently, a gap exists where flights have to use ATS-routes or published DCTs to transit the delegated areas.

### NM Systems

Cross-border FRA between DK-SE FAB and Maastricht / Karlsruhe UAC requires an evolution of NM systems which is planned for release NM 22.5.

### Publication

Development of solutions to publish cross-border FRA between four ACCs with specific FRA characteristics.

It is allowed to file LAT/LONG in DK-SE FAB FRA which is no option for Maastricht and Karlsruhe UACs.

**First implementation foreseen Spring 2019**

Thank you very much for your interest in FRAM



Find more information on:

<http://www.eurocontrol.int/free-route-airspace-maastricht-uac/>

